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ABSTRACT

An analysis of the characteristics and grades of students in Mathematics 71, a basic mathematics course, was conducted at Kings River Community College to provide counselors and instructors with information to help them determine the chances of a student's success in the course. Data collected included information on placement test scores; high school graduation; high school grade point average (GPA); prior college units; GPA in prior college courses; high school mathematics grades; and prior college mathematics grades. Findings of the study, based on information about 118 day and 35 evening students, included the following: (1) students had a 50% chance of success in Mathematics 71 if they scored in the 13-34 percentile range on placement tests, had a high school GPA of 2.00 to 2.48, had taken 15 to 34.5 college units before taking the course, or had a college GPA of 2.51 to 2.96; (2) students who scored above the 35 percentile on any mathematics placement test were more successful than those scoring below this or those without test scores; (3) high school graduates were more successful than non-graduates; (4) those with a high school GPA above 2.5 were more successful than those with a lower GPA or without high school transcripts; and (5) students with high school or college grades of C or better in mathematics courses were more successful than those with lower grades. (KL)

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SUMMARY ANALYSIS OF STUDENTS AND GRADES

MATHEMATICS 71, BASIC MATHEMATICS

Fall, 1980

Kings River Community College

Robert M. Clark, Counselor

May 21, 1982

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SUMMARY ANALYSIS OF STUDENTS AND GRADES

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The instructors' rosters were examined for names of students and grades earned. Control cards were surveyed for test scores and high school grade point average. College transcripts were surveyed for college units, college grade point average, and college math grades all prior to Math 71. High school transcripts were surveyed for high school math grades. Students who earned grades of A, B, or C in Math 71 were considered successful; those who had grades of D, F, W, or I recorded on the rosters were considered unsuccessful. Chi square at the 5% level of confidence was used to determine significance, a factor of 3.841. There were 118 students in the three day classes, and 35 students in the evening class, making a total N of 153.

There was no significant difference in success rate between day and evening students.

	Day Students	Evening Students	Total
Successful	61	12	73
Unsuccessful	57	23	80
Total	118	35	153

$x^2=3.279$

I <u>TEST SCORES</u>

A. There was no significant difference in success rate between those who took a placement test (ACT, CGP, of SAT) and those who didn't.

	Test	No Test	Total
Successful	54	19	73
Unsuccessful	52	28	80
Total	106	47	153

$x^2=1.426$

B. The following tests of significance using test scores are based on the following tabulation:

%ile Math Score	No. Successful	No. Unsuccessful	Chance of Success
36-94	25	6	Better than 50/50
13-34	18	18	50/50
1-12	11	26	Less than 50/50
No Test	19	30	Less than 50/50

C. A math score of 35%ile or higher is required to meet the math requirement for the associate degree. Those who scored above the 35%ile and who took Math 71 were more successful in Math 71 than those who did not qualify by virtue of the test score.

	Qualified	Not Qualified	Total
Successful	25	29	54
Unsuccessful	6	44	50
Total	31	73	104

x^2=14.595

D. Those who qualified for the associate degree by test were more successful in Math 71 than those who had no test scores.

	Qualified	No Test	Total
Successful	25	19	44
Unsuccessful	6	30	49
Total	31	49	80

x^2=13.499

E. There was no significant difference in success rate between those who did not qualify for the degree by test and those who had no test scores.

	Not Qualified	No Test	Total
Successful	29	19	48
Unsuccessful	44	30	74
Total	73	49	122

x^2=0.011

F. Those who scored in the 36-94%ile range were significantly more successful than were those who scored in the 13-34%ile range.

	36-94%ile	13-34%ile	Total
Successful	25	18	43
Unsuccessful	6	18	24
Total	31	36	67

$x^2=6.804$

G. Those who scored in the 36-94%ile range were significantly more successful than were those who scored in the 1-12%ile range.

	36-94%ile	1-12%ile	Total
Successful	25	11	36
Unsuccessful	6	26	32
Total	31	37	68

$x^2=17.551$

H. Those who scored in the 36-94%ile range were significantly more successful than those who had no test score.

	36-94%ile	No Test	Total
Successful	25	19	44
Unsuccessful	6	30	49
Total	31	49	80

$x^2=13.449$

I. There was no significant difference in success rate between those who scored in the 13-34%ile range and those who scored in the 1-12%ile range.

	13-34%ile	1-12%ile	Total
Successful	18	11	29
Unsuccessful	18	26	44
Total	36	37	73

$x^2=3.171$

J. There was no significant difference in success rate between those who scored in the 13-34%ile range and those who had no test score.

	13-34%ile	No Test	Total
Successful	18	19	37
Unsuccessful	18	30	48
Total	36	49	85

$x^2=1.063$

K. There was no significant difference in success rate between those who scored in the 1-12%ile range and those who had no test score.

	1-12%ile	No Test	Total
Successful	11	19	30
Unsuccessful	26	30	56
Total	37	49	86

$x^2=0.759$

II. HIGH SCHOOL GRADUATION

A. Those who graduated from high school were significantly more successful than were those who did not graduate from high school.

	H.S.Grad	Non-Grad	Total
Successful	64	9	73
Unsuccessful	60	20	80
Total	124	29	153

$x^2=3.989$

III. HIGH SCHOOL GRADE POINT AVERAGE

A. The following tests of significance using high school grade point average are based on the following tabulation:

High School GPA	No. Successful	No. Unsuccessful	Chance of Success
2.51-3.60	28	8	Over 50/50
2.00-2.48	19	19	50/50 chance
1.29-1.97	7	20	Less than 50/50
No Trans.	19	33	Less than 50/50

B. High school graduates with a g.p.a. above 2.50 were significantly more successful than were those with a g.p.a. between 2.00 and 2.48.

	Above 2.50	2.00-2.48	Total
Successful	28	19	47
Unsuccessful	8	19	27
Total	36	38	74

$x^2=6.155$

C. High school graduates with a g.p.a. above 2.50 were significantly more successful than were those with a g.p.a. below 2.00.

	Above 2.50	Below 2.00	Total
Successful	28	7	35
Unsuccessful	8	20	28
Total	36	27	63

$x^2=16.800$

D. High school graduates with a g.p.a. above 2.50 were significantly more successful than were those with no high school transcripts.

	Above 2.50	No. Trans.	Total
Successful	28	19	47
Unsuccessful	8	33	41
Total	36	52	88

$x^2=14.538$

E. There was no significant difference in success rate between high school graduates with a 2.0-2.48 g.p.a. and those with a g.p.a. below 2.00.

	2.00-2.48	Below 2.00	Total
Successful	19	7	26
Unsuccessful	19	20	27
Total	38	27	65

$x^2=3.811$

F. There was no significant difference in success rate between high school graduates with a 2.00-2.48 g.p.a. and those with no transcript.

	2.00-2.48	No Trans.	Total
Successful	19	19	38
Unsuccessful	19	33	52
Total	38	52	90

$x^2=1.630$

G. There was no significant difference in success rate between high school graudates with a g.p.a. below 2.00 and those with no transcript.

	Below 2.00	No. Trans.	Total
Successful	7	19	26
Unsuccessful	20	33	53
Total	27	52	79

$x^2=0.906$

H. Students who graduated from high school and presented transcripts were significantly more successful than were those students who did not present transcripts - non-graduates and non-matriculators.

	Transcript	No. Trans.	Total
Successful	54	19	73
Unsuccessful	47	33	80
Total	101	52	153

$x^2=3.942$

IV. PRIOR COLLEGE UNITS

A. There was no significant difference in success rate between students who had prior college units and those who didn't.

	College Units	No Coll. Units	Total
Successful	54	19	73
Unsuccessful	48	32	80
Total	102	51	153

$x^2=3.353$

B. The following tests of significance using prior college units are based on the following tabulation:

No. of Units	No. Successful	No. Unsuccessful	Chance of Success
35 and over	24	6	Better than 50/50
15-34.5	14	15	Approx. 50/50
0.5-14.5	16	27	Less than 50/50
No Units	19	32	Less than 50/50

C. Students who had 35 or more college units prior to Math 71 were significantly more successful than were those with 15 to 34.5 units.

	35+ Units	15-34.5 Units	Total
Successful	24	14	38
Unsuccessful	6	15	21
Total	30	29	59

$x^2=6.473$

D. Students who had 35 or more college units prior to Math 71 were significantly more successful than were those with 0.5 to 14.5 units.

	35+ Units	0.5-14.5 Units	Total
Successful	24	16	40
Unsuccessful	6	27	33
Total	30	43	73

$x^2=13.062$

E. Students who had 35 or more college units prior to Math 71 were significantly more successful than were those with no units.

	35+ Units	No Units	Total
Successful	24	19	43
Unsuccessful	6	32	38
Total	30	51	81

$x^2=13.857$

F. There was no significant difference in success rate between students with 15 to 34.5 prior college units and those with 0.5 to 14.5 units.

	15-34.5 Units	0.5-14.5 Units	Total
Successful	14	16	30
Unsuccessful	15	27	42
Total	29	43	72

$x^2=0.872$

G. There was no significant difference in success rate between students with 15 to 34.5 prior college units and those with no units.

	15-34.5 Units	No Units	Total
Successful	14	19	33
Unsuccessful	15	32	47
Total	29	51	80

$x^2=0.926$

H. There was no significant difference in success rate between students with 0.5 to 14.5 prior college units and those with no units.

	0.5-14.5 Units	No Units	Total
Successful	16	19	35
Unsuccessful	27	32	59
Total	43	51	94

$x^2=0.000$

V. GRADE POINT AVERAGE OF PRIOR COLLEGE UNITS

A. The following tests of significance using college grade point average are based on the following tabulation:

	No. Successful	No. Unsuccessful	Chance of Success
3.0 g.p.a. and above	14	6	Better than 50/50
2.51-2.96 g.p.a.	12	12	50/50 chance
2.50-2.00 g.p.a.	16	18	Slightly less than 50/50
1.94 and below	5	10	Less than 50/50

B. There was no significant difference in success rate between students with a prior college g.p.a. of 3.0 or higher and those with 2.51-2.96 g.p.a.

	3.0 or Higher	2.51-2.96	Total
Successful	14	12	26
Unsuccessful	6	12	18
Total	20	24	44

$x^2=1.805$

C. There was no significant difference in success rate between students with a prior college g.p.a. of 3.0 or higher and those with 2.00-2.50 g.p.a.

	3.0 or Higher	2.00-2.50	Total
Successful	14	16	30
Unsuccessful	6	18	24
Total	20	34	54

$x^2=2.684$

D. Students with a prior college g.p.a. of 3.0 or higher were significantly more successful than were those with a g.p.a. of below 2.00.

	3.0 or Higher	Below 2.00	Total
Successful	14	5	19
Unsuccessful	6	10	16
Total	20	15	35

$x^2=4.643$

E. There was no significant difference in success rate between students with prior college g.p.a. of 2.51-2.96 and those with 2.00-2.50 g.p.a.

	2.51-2.96	2.00-2.50	Total
Successful	12	16	28
Unsuccessful	12	18	30
Total	24	34	58

$x^2=0.048$

F. There was no significant difference in success rate between students with prior college g.p.a. of 2.51 to 2.96 and those with a g.p.a. below 2.00.

	2.51-2.96	Below 2.00	Total
Successful	12	5	17
Unsuccessful	12	10	22
Total	24	15	39

$x^2=1.042$

G. There was no significant difference in success rate between students with prior college g.p.a. of 2.00 to 2.50 and those with a g.p.a. below 2.00.

	2.00-2.50	Below 2.00	Total
Successful	16	5	21
Unsuccessful	18	10	28
Total	34	15	49

$x^2=0.800$

VI. HIGH SCHOOL MATH GRADES

A. Students who earned grades of C or better in high school math classes (any math class, such as Consumer Math, Basic Math, Basic Algebra, Geometry) were significantly more successful than were those who had one or more math grades below C.

	Grades C or Better	Grade(s) Below C	Total
Successful	27	31	58
Unsuccessful	15	41	56
Total	42	72	114

$x^2=4.783$

B. Students who earned grades of C or better in high school math classes were significantly more successful than were those who had no high school transcript on file.

	Grades C or Better	No Transc.	Total
Successful	27	16	43
Unsuccessful	15	23	38
Total	42	39	81

$x^2=4.393$

C. There was no significant difference in success rate between students with one or more grades in high school math below C and those students without high school transcripts.

	Grade(s) Below C	No Transcr.	Total
Successful	31	16	43
Unsuccessful	41	23	38
Total	72	39	111

$x^2=0.078$

D. There was no significant difference in success rate between those students who had some Algebra in high school and those who didn't.

	Algebra	No Algebra	Total
Successful	40	18	58
Unsuccessful	34	22	56
Total	74	40	114

$x^2=0.851$

VII. COLLEGE MATH GRADES PRIOR TO MATH 71

A. The following test of significance using prior college math grades are based on the following tabulation:

	No.Successful	No. Unsuccessful	Chance of Success
All grades C or better	10	2	Better than 50/50
One or more grades below C	6	17	Less than 50/50
No math class	56	62	Slightly less than 50/50

B. Students with prior college math grades of C or better were significantly more successful than were those students with prior math grades below C.

	Grade(s) C or Better	Grades Below C	Total
Successful	10	6	16
Unsuccessful	2	17	19
Total	12	23	35

$x^2=10.413$

C. Students with prior college math grades of C or better were significantly more successful than were those students with no prior math class.

	Grade(s) C or Better	No Math	Total
Successful	10	56	66
Unsuccessful	2	62	64
Total	12	118	130

$x^2=5.608$

D. There was no significant difference in success rate between students with prior college math grades below C and those students with no prior math class.

	Grade(s) Below C	No Math	Total
Successful	6	56	62
Unsuccessful	17	62	79
Total	23	118	141

$x^2=3.568$

SUMMARY

1. Students who scored above the 35%ile on any math placement test were more successful than those who scored below or who had no test. (IC, ID, IF, IG, IH)

2. Students who scored in the 13-34%ile range had a 50/50 chance of success in Math 71. (IB)

3. High school graduates were more successful than non-graduates. (IIA)

4. High school graduates with a grade point average in high school of 2.00-2.48 had a 50/50 chance of success. (IIIA)

5. Students with a high school grade point average above 2.50 were more successful than those below 2.50 and those with no high school transcript. (IIIB, IIIC, IIID)

6. Students with 15 to 34.5 prior college units had approximately a 50/50 chance of success. (IVB)

7. Students with 35 or more prior college units were more successful than were students with fewer or no prior college units. (IVC, IVD, IVE)

8. Students with a prior college grade point average of 2.51 to 2.96 had a 50/50 chance of success. (VA)

9. Students with a prior college grade point average of 3.00 or higher were more successful than those with a grade point average below 2.00. (VD)

10. Students with grades of C or better in any high school math course or courses were more successful than those with any one or more grades below C in any high school math class and were more successful than those without a high school transcript. (VIA, VIB)

11. Students with grades of C or better in any prior college math class were more successful than were students with college math grades below C and those with no prior college math courses. (VIIB, VIIC)

RECOMMENDATIONS

1. Counselors, advisors, and instructors in Math 71 use the information in the summary to determine chances of success for prospective students in May 71 and advise the students of their chances and suggest possible remedial math classes prior to Math 71, such as Math 70.

2. Further research to determine a testing cut-off score for enrollment in Math 71 and for placement in Math 70 or some lower level math course.

3. Further research to determine whether or not there is some correlation between reading ability and success in Math 71.

4. Further research to determine if the above steps are helpful in retention and successful completion of Math 70 and 71.

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